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ART 34 ACP

WHAT IS CLAIMED IS:

1. A cross member for a motor vehicle, comprising:
an elongated, center structure having a first end, a mid portion, and a second end, said center structure being formed as a non-cast structure;
a first casting rigidly connected to said first end of said center structure; and
a second casting rigidly connected to said second end of said center structure,
each of said first and second castings being configured and arranged to be attached to a respective motor vehicle element.
2. A cross member according to claim 1, wherein said center structure is constructed as a one-piece, unitary structure.
3. A cross member according to claim 2, wherein said metallic material is selected with a group consisting of steel and aluminum.
4. A cross member according to claim 1, wherein said center structure has a U-shaped cross section.
5. A cross member according to claim 1, wherein each of said castings includes a flange and wherein each of said castings includes a flange and wherein each of said castings is rigidly connected to said center structure by rigidly connecting said flange of each casting to said center structure.
6. A cross member according to claim 1, wherein each of said castings is rigidly connected to said center structure using fasteners.
7. A cross member according to claim 6, wherein said fasteners are rivets.

8. A cross member according to claim 7, wherein each casting is rigidly connected to said center structure using an adhesive.

9. A cross member according to claim 1, wherein each casting is rigidly connected to said center structure by welding.

10. A cross member according to claim 4, further comprising a cover mounted beneath and rigidly secured to said center structure to close the U-shaped cross-section of said center structure.

11. A frame for a motor vehicle, comprising:
first and second side frame members; and
a cross member coupled to and extending between said first and second side frame members, said cross member having
an elongated, center structure having a first end, a mid portion, and a second end, said center structure being formed as a one-piece, unitary, non-cast structure,
a first casting rigidly connected to said first end of said center structure, and
a second casting rigidly connected to said second end of said center structure,
said first and second castings being attached to said first and second side frame members, respectively.

12. A frame according to claim 11, wherein said center structure is a one-piece, unitary structure.

13. A frame according to claim 12, wherein said center structure has a U-shaped cross section and further comprises a cover mounted beneath and rigidly secured to said center structure and to each of said castings.

14. A method of forming a cross member for a motor vehicle, comprising:

forming an elongated, center structure by a method other than casting such that the center structure has a first end, a mid portion, and a second end;

forming first and second cast structures by casting, each cast structure being configured and arranged to be attached to respective motor vehicle elements; and

connecting the first and second cast structures to the first and second ends, respectively, of the center structure to form a rigid connection between the center structure and the first and second cast structures.

15. A method according to claim 14, wherein the center structure is formed by stamping.

16. A method according to claim 14, wherein the connecting of the first and second cast structures to the center structure includes attaching respective flanges of the first and second cast structures to the center structure.

17. A method according to claim 16, wherein the connecting is carried out by welding.

18. A method according to claim 16, wherein the connecting is carried out by attaching fasteners between each of the cast structures and the center structure.

19. A method according to claim 14, wherein the center structure is formed as a one-piece, unitary structure.

20. A method of forming a motor vehicle frame, comprising:
forming an elongated, center structure by a method other than casting such that the center structure has a first end, a mid portion, and a second end;
forming first and second cast structures by casting, each cast structure being configured and arranged to be attached to respective motor vehicle elements;
connecting the first and second cast structures to the first and second ends,

respectively, of the center structure to form a rigid connection between the center structure and the first and second cast structures; and

connecting the first cast structure to a first motor vehicle frame member; and

connecting the second cast structure to a second motor vehicle frame member.